Subject card

Subject name and code	Computer Game Design, PG_00047980
Field of study	Informatics

Date of commencement of studies	October 2023	Academic year of realisation of subject	2026/2027
Education level	first-cycle studies	Subject group	Optional subject group Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	4	Language of instruction	Polish
Semester of study	7	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	exam

Conducting unit	Department of Intelligent Interactive Systems -> Faculty of Electronics, Telecommunications and Informatics

Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Mariusz Szwoch
	Teachers	dr inż. Mariusz Szwoch

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	0.0	45
	E-learning hours included: 0.0						

Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
	Number of study hours	45	4.0	51.0	100

Subject objectives	Learning the basics, principles, methodology and technology of video game design based on modern graphic engines.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W01] Knows and understands, to an advanced extent, mathematics necessary to formulate and solve simple issues related to the field of study	Shows the history of games development and components of games engines.	[SW1] Assessment of factual knowledge
	[K6_U03] can design, according to required specifications, and make a simple device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment	Student differenciates and characterises different genres of video games. Shows the history of games development and components of games engines.	[SU4] Assessment of ability to use methods and tools
	[K6_U43] can analyse date and formulate, apply and assess appropriate formal models and algorithms for solving problems in the field of information systems and applications	Student differenciates and characterises different genres of video games. Shows the history of games development and components of games engines.	[SU4] Assessment of ability to use methods and tools
	[K6_W05] Knows and understands, to an advanced extent, methods of supporting processes and functions, specific to the field of study	Student differenciates and characterises different genres of video games. Shows the history of games development and components of games engines.	[SW1] Assessment of factual knowledge
	[K6_W41] Knows and understands, to an advanced extent, the operation and evaluation criteria of data processing, storage and transfer methods, including computational algorithms, artificial intelligence and data mining	Shows the history of games development and components of games engines.	[SW1] Assessment of factual knowledge

Subject contents	
	1. Introduction 2. Video games: definition, kinds, evolution history 3. Basic video game concepts (goals and rules, gameplay, challanges and actions, game modes, balancing etc.) 4. Video games genres 5. Video games elements: core mechanics, user interface, interaction models and perspectives, gameplay modes, shell menus and screens 6. Games hardware: PC, consoles, mobile devices 7. Elements of game development process: player-centric approach, idea, project, scenario, plot, 8. Game project documentation 9. Design teams - tasks, members and their competences 10. Artificial intelligence 11. Types of game levels and their designing rules 12. Interactivity and user interface 13. Game Engines 14. Sample game development environments (Unity Engine, Unreal Engine) 15. Supporting tools, Speed Tree

Prerequisites and co-requisites	
	Computer Graphics - basic level Multimedia and Interfaces

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Presences and activity	51.0%	10.0%
	Written exam	51.0%	40.0%
	Practical exercise	51.0%	50.0%

Recommended reading	Basic literature	1. E. Adams: Fundamentals of Game Design, New Riders, 2013. 2. V. Pereira: Learning Unity 2D Game Development by Example, Packt Publishing 2014. 3. S.Jackson: Mastering Unity 2D Game Development, Packt Publishing 2014. 4. R. Henson Creighton: Unity 4.x Game Development by Example: Beginner's Guide, Packt Publishing 2013. 5. A.R. Stagner: Unity Multiplayer Games, Packt Publishing 2013. 6. M.Smith, C.Queiroz: Unity 5.x Cookbook, Packt Publishing 2015. 7. M.A.Moniem: Learning Unreal® Engine iOS Game Development, Packt Publishing 2015. 8. D.Voyles: UnrealScript Game Programming Cookbook , Packt Publishing 2013. 9. M.A.Moniem:Unreal Engine Lighting and Rendering Essentials, Packt Publishing 2015. 10. H.Ferrone: Learning C# by Developing Games with Unity 2019 - Fourth Edition, Packt Publishing 2019. 11. D.Baron: Hands-On Game Development Patterns with Unity 2019, Packt Publishing 2019. 12. C.Dickinson, D.Aversa: Unity Game Optimization - Third Edition, Packt Publishing 2019.
	Supplementary literature	No requirements
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	